

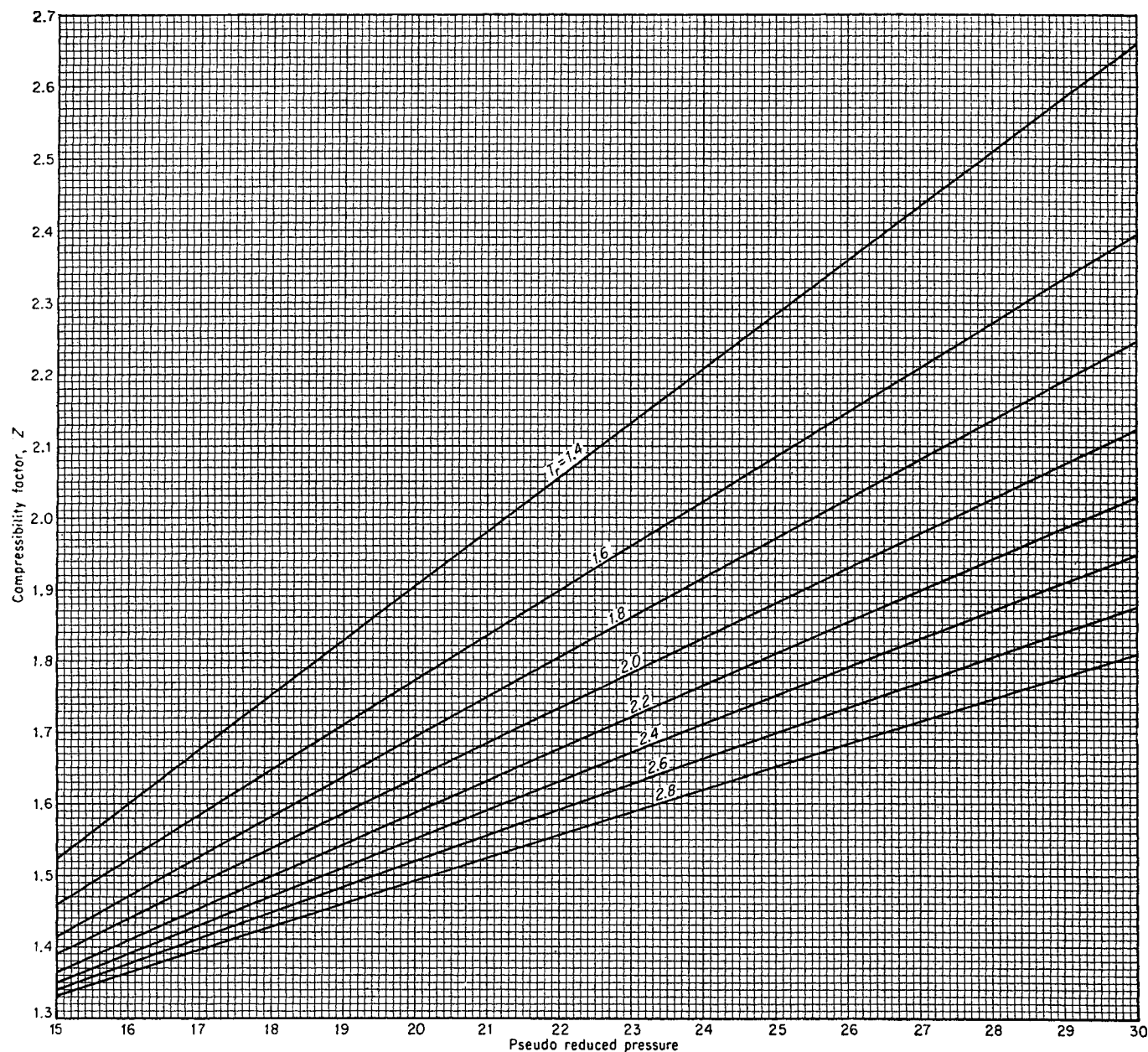


Fig. 4-16a. Compressibility factors for natural gases at pressures of 10,000 to 20,000 psia.

Reamer, Sage, and Lacey (4-73) have reported the specific volumes (Table 4-13) and the compressibility factors (Fig. 4-19) for high methane concentrations.

Pseudocriticals for Heptanes and Heavier Constituents

The hexanes, heptanes, and heavier constituents of natural gas contain several hydrocarbon compounds as well as the normal and isomeric paraffins. In fractional analyses, these individual constituents are difficult to identify, and often they are collected as a liquid with the molecular weight and specific gravity determined thereon. Kay (4-54) devised a method of

obtaining pseudocriticals for liquids, which was revised by Smith and Watson (4-86) and in which the slope of the boiling-point curve, the molecular weight, and the specific gravity were required. A group of microdistillations was available on heptane and heavier fractions for condensates, and this was used, along with Smith and Watson's charts, to predict the relationship of pseudocritical conditions to molecular weight and specific gravity (Fig. 4-20). For constituents pentanes and heavier, hexanes and heavier, or heptanes and heavier, when specific gravity and molecular weight of the liquid are known, the chart is believed to be satisfactory. It was used in comparing